

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, claim 1 has been amended to incorporate the subject matter of claims 2 and 3, as a result of which claims 2 and 3 have been cancelled.

Claim 12 has been amended to incorporate the subject matter of claims 13 and 14 (which is the same as claims 2 and 3), as a result of which claims 13 and 14 have been cancelled.

It is apparent that the foregoing amendments should be entered, even though they are being submitted after a final rejection. The effect of the amendments is to incorporate limitations (claims 2, 3, 13 and 14) which the Examiner has already considered, into the independent claims (claims 1 and 12). Therefore, entry of these amendments will not require any further consideration and/or search of the prior art.

The patentability of the presently claimed invention after entry of the foregoing amendments, over the disclosure of the reference relied upon by the Examiner in rejecting the claims, will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-3, 6, 7, 12-14, 17 and 18 under 35 U.S.C. §103(a) as being unpatentable over Goettmann et al. is respectfully traversed.

Applicants continue to rely on their previous arguments in support of the patentability of the present invention over this reference, most recently as set forth in the Amendment filed September 17, 2004.

In responding to Applicants' previous patentability arguments, the Examiner takes the position that Applicants have not provided convincing evidence to overcome a presumption of obviousness. Although Applicants take the position that a presumption of obviousness has not been established, they are nevertheless submitting herewith a verified showing (REPORT) which clearly shows unexpected superior results for the presently claimed invention as compared to the Goettmann et al. reference. In this verified showing, samples of the claimed semipermeable membrane support (made by non-woven fabric) and Goettmann et al. non-woven fabric were prepared, and compared, showing that the claimed semipermeable membrane support has superior relative tensile

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strength property than that of Goettmann et al. As shown therein, the Goettmann non-woven fabric containing cellulose fibers are deteriorated in an acid solution, while the claimed non-woven fabric maintains its strength.

This Report also supports Applicants' previous argument that cellulosic material would defeat Applicants' purpose of providing a semipermeable membrane support.

The Examiner also takes the position that the expression "semipermeable membrane support" in the preamble of the claims does not give any special life or meaning to the claim, or further limit the claim, unlike in the case of Kropa v. Robie, but rather, merely represents an expression of intended use.

However, at the very least, the expression "semipermeable membrane support" must be interpreted as meaning that the support must be capable of supporting a semipermeable membrane during use of the semipermeable membrane. In other words, the expression "semipermeable membrane" represents a property of the claimed support, and as such, must be considered in determining patentability.

The Examiner further argues that, contrary to Applicants' position, Goettmann et al. teach a fabric that has cellulose, like wood pulp, but they are not fibers, and the reference does not describe them as fibers.

However, to the contrary, as Applicants have previously noted, claim 1 of the Goettmann et al. reference refers to "cellulose fibers" (twice); and it is further noted that claims 4 and 9 also refer to "cellulose fibers". In addition, in discussing Figs. 4-6 and 10-12, Goettmann et al. refer to "Fiber components . . . cellulose 60" (column 5, lines 36-40) and "Fiber components . . . cellulose 90" (column 7, lines 42-46). Accordingly, it is apparent that Goettmann et al. does in fact describe the cellulose materials as fibers.

The Examiner further states that cellulose is used as membrane and membrane support materials in membranes for almost all applications (reverse osmosis, UF, NF, MF, gas separation, petrochemicals, etc.).

Although Applicants agree that cellulose acetate may be used as a separator membrane, cellulose is NOT used as membrane support materials. Since cellulose is biodegradable and is subject to deterioration by bacterium, its life is short, and its application is very limited. Because of such disadvantageous property, if cellulose were used in membrane support materials, then it could not perform its function, i.e., a

supporting membrane. Accordingly, Applicants respectfully submit that the Examiner is incorrect in stating that cellulose is used as membrane and membrane support materials and membranes for almost all applications.

Also please note that Goettmann et al. do NOT distinguish the membrane itself and its support, but merely state "nonwoven composite" collectively. Thus it would not be obvious for persons skilled in the art to distinguish the membrane and its support with respect to cellulose therein, based on Goettmann et al.

Regarding the Examiner's statement that "It may be noted that applicants disclose adding, among other things, hydrophilic agents (cellulose is a hydrophilic agent) to improve the non-woven fabric (page 8 lines 5-8), which would give the exact same effect the applicants argue as undesirable - expand during water separation" (emphasis added), in the present specification a "hydrophilic agent" is applied for hydrophilicity in the process of making a non-woven fabric by a wet-process to uniformly disperse polyester fiber material in suspension. It performs like a surface-active agent. Also it can be adhered to polyester fiber material itself.

In either case, such "hydrophilic agent" works as an assistant agent which helps polyester fiber material become hydrophilic and therefore capable of suspension. Since this "hydrophilic agent" is water-soluble and mostly washed away in water during the manufacturing process, there is no or only a small residual amount of agent at the time the non-woven fabric is formed.

Accordingly, "hydrophilic agent" mentioned in this application causes no problem such as swelling when it is used as a semipermeable membrane support in water.

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the Goettmann et al. reference.

Therefore, in view of the foregoing amendments and remarks, it is submitted that the ground of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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